DOCUMENT RESUME

ED 086 639 SO 006 872

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TITLE Field Research and the Development of Instructional Theory: A Study of a Social Studies Values Conflict Curriculum.
PUB DATE 71
NOTE 62p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Classroom Observation Techniques; Cognitive Processes; *Deductive Methods; Discussion (Teaching Technique); Educational Research; Elementary Education; Field Studies; Fundamental Concepts; Logical Thinking; Research Methodology; *Social Studies; Teaching Styles; *Teaching Techniques; *Thought Processes

ABSTRACT

The purpose of this study is to develop from naturalistic field observation data a set of concepts and hypotheses related to the teaching of thinking. The study conceptualizes and relates thought processes and instructional strategies by analyzing data collected from classrooms in which the Washington University Elementary Social Science Curriculum Project was taught. Two units from this project on India and on changing neighborhoods were observed in two different settings in fourth and fifth grade classrooms. In the settings, an initial set of questions guided the collection and analysis of data. Common characteristics of lessons in both settings helped to suggest categories for reporting the results of the study. Some examples of the data analysis include concepts and hypotheses relating instructional strategies and the reviewing, clarifying, and justifying of arguments. Implications of the study include further development of instructional theory, aiding the teacher in making judgements about teaching behaviors, and recognizing the importance of naturalistic field observation as a methodological tool for theory building. (Author/KSM)

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FIELD RESEARCH AND THE DEVELOPMENT OF INSTRUCTIONAL THEORY: A STUDY OF A SOCIAL STUDIES VALUES CONFLICT CURRICULUM

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ABSTRACT

This article is adapted from a study recently completed by the author (Seif, 1971). The major purpose of this study was to develop from naturalistic field observation data a set of concepts and hypotheses related to the teaching of thinking. It was hoped that by collecting data from ongoing classroom settings, concepts and hypotheses related to the teaching of thought process skills which aid in clarifying social and ethical issues could be developed which would more likely reflect the real world of the classroom than concepts and hypotheses derived from theoretical models. Such concepts and hypotheses also further the development of a theory of teaching thinking. The study conceptualizes and relates thought processes and instructional strategies by analyzing data collected from classrooms in which the Washington University Elementary Social Science Curriculum Project was taught.

Two units from this curriculum project were observed in two different settings. In these settings, an initial set of questions and concerns, called foreshadowed problems, guided the collection and analysis of data. Naturalistic field observation data were collected in these two settings because it was concluded this type of data best enabled the researcher to generate concepts and hypotheses relating instructional strategies and thought processes. Conceptualizations of common characteristics of lessons

in both settings helped to suggest categories for reporting the results of the study.

Some examples of the data analysis include concepts and hypotheses relating instructional strategies and reviewing, clarifying, and justifying arguments. The writer believes that the generation of such concepts and hypotheses will lead to the further development of instructional theory, and that naturalistic field observation research is an important methodological tool for theory building. In addition, the generation of such concepts and hypotheses should aid the teacher in making judgments about teaching behaviors to employ in the classroom.

Introduction

This article is adapted from a study recently completed by the author (Seif, 1971). The study suggests some concepts and hypotheses related to the teaching of thinking. The study also suggests how field research can be used for developing instructional theory.

In the first section of this article, the author suggests some problems with past research on the teaching of thinking, and briefly indicates the purpose and methodology of this study. Since the study incorporated field research with an experimental curriculum in classroom settings, the second section explains the curriculum observed and the classroom contexts in which it was observed. The third section outlines the field research methodology utilized during the study, including a rationale for the use of field research in developing instructional theory. Finally in the fourth section some of the results of the analysis of the data are explored

Purpose and Rationale of the Study

The development of effective thinking for rational decision making in a free society is a commonly expressed goal for American education. For example, one of the most widely known and influential reports for liberal

education in the United States, General Education in a Free Society (1950), authored by a group of Harvard educators, concludes that important traits of mind which educators must develop for rational decision making are ". . . to think effectively, to communicate thought, to make relevant judgments, to discriminate among values . . ." (p .65). These traits include the development of logical thinking, of communicating ideas, of making judgments in concrete situations, and of choosing among values. To cite another source from the many possible examples, Broudy, Smith, and Burnett (1964) conclude that thinking critically is an important component of secondary education in a free society, and that this includes symbolic and logical operations necessary for making political, aesthetic, and moral choices in a democratic society.

The importance of thinking as an educational goal suggests that research should lead to adequate conceptualizations of thought processes and instructional strategies for teaching thinking. Adequate conceptualizations require a close fit between concepts, relationships between concepts (propositions), and the complexities of classroom situations. These are prerequisites for the development of a theory of teaching thinking.

After reviewing the literature on the teaching of thinking, this investigator concluded that conceptualizations of the instructional strategies and thought

processes related to the teaching of thinking do not adequately correspond to the complexities of classroom situations. This investigator agrees with Taba, Levine and Elzey (1964, p. 39) that studies on teaching thinking have underestimated the complexity of the classroom process.

First, many of the instructional strategies and thought processes described in the literature have not been developed from classroom data. For example, numerous articles in teaching journals, as well as curriculum guides, suggest instructional strategies for teaching thinking with no evidence as to their relationships to teaching thinking under normal classroom conditions.

Second, many research studies on the teaching of thinking use experimental designs to test differences in the learning of thinking skills (e.g., see Shaver, 1962) and develop in advance of the study controlled instructional patterns, such as "doing" and "telling". The assumption that these strategies described in the studies reflect complex instructional strategies utilized under ordinary classroom conditions is open to question.[1]

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[1]This writer is not denying the usefulness of experimental design (verificational) research, but is suggesting that prior to such studies instructional strategies reflecting the complexities of classroom situations should be developed. For a further explanation see Smith and Geoffreys (1968, pp. 249-50) and Smith and Pohland (1969, pp. 118-122).

Third, thought processes which are tested and developed in research studies of teaching thinking are usually derived from models of thinking such as critical thinking models (Glaser, 1941, Henderson, 1958) or logical thinking models (Hyram, 1957, Smith & Meux, 1962). However, Berlak (1968) and Taba et al. (1964) argue that general thinking models are inadequate for developing modes of thought for specific problems or content areas. Berlak (p. 387) suggests that personal, social, scientific, historical, practical and professional, and aesthetic problems require different types of intellectual skills and abilities. Taba et al. (p. 26) suggest that different content areas, such as science, math, and the social sciences require different modes of thought. Thus specific problems or content determine the use of more precise modes of thought in a given teaching situation than the models prescribe.

Fourth, studies of the teaching of thinking generally have neglected non-rational variables operating in the classroom situation. For example, the teacher's influence on students' thinking and students' influence on each other's thinking may affect the teaching of thinking in classroom situations. Studies of the teaching of thinking, to this investigator's knowledge, have not attempted to examine these variables.

The major purpose of this study was to develop from naturalistic field observation data a set of concepts

and hypotheses related to the teaching of thinking. It was hoped that by collecting data from ongoing classroom settings, concepts and hypotheses related to the teaching of thought process skills which aid in clarifying social and ethical issues could be developed which would be more likely to reflect the real world of the classroom than concepts and hypotheses derived from theoretical models (Glaser & Straus, 1967). Such concepts and hypotheses also further the development of a theory of teaching thinking. The study conceptualizes and relates thought processes and instructional strategies by analyzing data collected from classrooms in which the Washington University Elementary Social Science Curriculum Project (Berlak & Tomlinson, 1967) was taught. The analysis includes both rational and non-rational factors in classroom situations which relate to the teaching of thinking.

The Observation Context

The content of this curriculum project is a set of social and ethical dilemmas. Each unit in the curriculum focusses on one or more social and ethical dilemmas confronting an individual, family, or community. The settings of these dilemmas are varied; some take place in foreign countries such as Mexico, Russia, India and Nigeria, and others take place in American communities. Berlak and Tomlinson suggest that social and

ethical dilemmas in a free society revolve around a set of perennial ethical issues ". . . that are never resolved in any final sense" (p. 39). Specific political and social disputes, such as compulsory government health insurance programs, the collection and use of wiretap evidence and no-knock tactics by police and the courts, and the development of urban renewal projects, contain these underlying issues. The following ethical issues are the basis for the dilemmas developed in the units of the curriculum: (1) equal access vs. privilege, (2) social concern vs. individualism, (3) change vs. stability, (4) conformity vs. freedom, (5) freedom vs. privatism, (6) autonomy vs. general welfare, and (7) control of conflict (pp. 39-41).

The major goal of the curriculum is the learning of a set of intellectual thought processes for helping children to clarify social and ethical issues. The set of intellectual thought processes proposed by Berlak and Tomlinson (pp. 44-45) were modelled after the jurisprudential thinking model reported by Oliver and Shaver (1966) and Oliver and Newmann (1967), and primarily concern the resolution of types of disagreements in discussions of social and ethical issues. The model specifically suggests ways of resolving definitional, factual, and value problems in discussions in order to clarify social and ethical issues.

Student participation and involvement are also

emphasized in the curriculum lessons. The teacher's guides for each lesson suggest teaching strategies which both encourage and depend heavily upon student participation and involvement in discussions.

This investigator, in the fall of 1969, initially observed the teaching of two units from the Washington University Curriculum Project--the India Unit (Berlak & Tomlinson, 1969b) and the Changing Neighborhoods Unit (Barlak & Tomlinson, 1969a). The India unit[1] issue revolves around the personal dilemma confronting Darzi, an adolescent boy living in a village in India, over whether he should leave the village to start a life of his own in the city, or remain on the farm and in the village in order to help provide for the welfare of his family. This dilemma is an example of a more general conflict between autonomy and the general welfare. The Changing Neighborhoods unit focusses on the problems of a black family called the Davis family, living in a changing community in a metropolitan area. The issue in the unit revolves around the personal dilemma confronting the Davis family as to whether they should move into a nearly all-white suburb or remain in their black community. This dilemma is an example of a more general conflict between individualism and social concern.

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[1]These two units are noted in the remainder of the study as the India unit and the Changing Neighborhoods unit.

As a result of an analysis of the curriculum, lessons in each unit were divided into three parts: those which provided students with background information for the social and ethical dilemmas in the unit; the "issue discussion lessons," in which social and ethical dilemmas were discussed and intellectual thought processes learned, and post issue discussion lessons, in which students might learn the outcome of the dilemma, or discuss "micro-cases"--situations with ethical issues similar to those in the units. It is in the issue discussion lessons that intellectual thought process skills were taught and student participation and involvement were employed in discussions, and this investigator observed these lessons in two settings, one in which the India unit was taught, and the other in which the Changing Neighborhoods unit was taught.

The India Unit Lessons and Setting

The India unit issue discussion lessons were observed in a fourth grade classroom in County School District.[2] In the 1969-1970 school year County School District had approximately 8,400 students. The assessed valuation/pupil (in terms of average attendance) was $16,469, which ranked ninth among twenty-six school districts in this metropolitan area. Per pupil

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[2]Throughout this study, the names of the schools and school districts have been changed, along with the names of the teachers and students.

expenditure amounted to $922, placing it fourth in the metropolitan area, and the average pupil-teacher ratio was 19:1, also fourth in the area. Thus, County School District spent more money for its schools, and had a lower pupil-teacher ratio, than most districts in the area.

County School District is a racially transitional suburb, and the number of blacks in the schools has increased during the past five years. Compared to other local suburban school districts, County School District had a relatively high proportion of blacks enrolled in the schools in 1970. Approximately 32 percent of the district's pupils were black.

Foster School, where the fourth grade classroom is located, is in an area generally consisting of private homes. The school has an enrollment of 349 students, and is one of eleven schools in the district. There are sixteen full-time teachers in the school.

The average I.Q. of the students in the classroom observed at Foster School is 106.6. The racial composition of the classroom is mixed, six of the twenty-four students are black.[3]

Seven days of issue discussion lessons were observed in this setting, from December 8, 1969 to

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[3]Data on other characteristics of students such as religious, ethnic, and socioeconomic status were unavailable to this investigator.

December 17, 1969. Each lesson was approximately one hour in length, taught from 10:30 A.M. to 11:30 A.M., just before the students lunch hour. Miss Simon taught lessons on December 8, 9, and 10, Mr. Kapp taught lessons on December 11, 15, 16, and 17.[4]

These two teachers were not the regular classroom teachers, because the lessons observed were part of an experimental unit being field tested by the authors of the Washington University Elementary Social Science Curriculum Project (Berlak & Tomlinson, 1967). One of the teachers, Mr. Kapp, is thirty-seven years old, is associated with the development of the curriculum materials, and is an experienced teacher who has taught high school classes for thirteen years, and also taught units of the Washington University curriculum in field test situations for the past three years. Miss Simon is thirty-two years old, and studying for her master's degree in social science education at a local university. She has taught in elementary school classrooms for nine years.

The Changing Neighborhoods Unit
Lessons and Setting

The Changing Neighborhoods issue discussion lessons were observed in a fifth grade classroom in Suburban School District. In the 1969-1970 school year Suburban

[4]These dates are noted numerically in the remainder of the study. For example December 8 is noted as 12/8.

School District had approximately 6,500 students. The assessed valuation/pupil (in terms of average attendance) was $26,005, which ranked second among twenty-six school districts in this metropolitan area. Per pupil expenditure was $1,082, placing it second in the metropolitan area, and the average pupil-teacher ratio was 15:1, also second in the area. Thus, Suburban School District ranked high in this metropolitan area both in terms of its expenditures for its schools and its pupil-teacher ratio.

Suburban School District is almost exclusively white. The school administration estimates that approximately 1 percent of its students are black.

Grant School, where the fifth grade classroom is located, is in an area generally consisting of private homes. It has an enrollment of 301 students, and is one of thirteen schools in the district. There are sixteen fulltime teachers and three parttime teachers on the staff.

The average IQ of the students in the classroom observed at Grant School is 113.8. All of the twenty-four students in the classroom are white.[5]

Four days of issue discussion lessons were observed in this setting, from January 20, 1970 to January 23, 1970.[6] The lessons were taught for approximately

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[5]Data on other characteristics of students such as religious, ethnic, and socioeconomic status were unavailable to this investigator.

[6]These dates are noted numerically in the remainder of the study. For example, January 20 is noted as 1/20.

one hour each day, from 2:30 in the afternoon until 3:30,[7] the end of the school day. The teacher of these lessons, Miss Morgan, was the regular teacher of the class. She is thirty-seven years old, with a Master of Arts in Education degree and more than twenty additional hours of class credit. She has taught in elementary classrooms for eighteen years, and is also one of the school district's representatives in a Federally funded social studies project, which includes representatives of local suburban and city schools. Miss Morgan also conducts social studies curriculum workshops in the school district. She has taught units of the Washington University Elementary Social Science Curriculum Project (Berlak & tomlinson, 1967) in her classroom during the past two years.

The Changing Neighborhoods unit consists of twenty-two lessons, including two sets of issue discussion lessons. Lessons 13 and 14, which constitute the first issue discussion series lessons, were observed.

Methodology

Foreshadowed Problems

Since the major purpose of this study is the development of concepts and hypotheses, this investigator had no specific hypotheses or research design in mind

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[7] On January 21, the lesson was taught from 10:30 to 11:30.

before beginning the study. However, an initial set of questions and concerns, called foreshadowed problems (Malinowski, 1922), guided the collection and analysis of data from the issue discussion lessons in two settings. Malinowski (pp. 8-9) distinguished between foreshadowed problems and preconceived ideas. He equated preconceived ideas with the inability of an investigator to change his views under the pressure of evidence. In contrast, foreshadowed problems are questions and concerns which help an investigator to mold his theories according to the facts, and to see the relationships of facts to theories.

The sources of foreshadowed problems for this study were selected social studies teaching literature (Oliver & Shaver, 1962, Oliver & Shaver, 1966, Oliver, Newmann & Levin, 1969), and the investigator's experiences with the Washington University Elementary Social Science Curriculum Project (Berlak & Tomlinson, 1967) including extensive participation in the development and field testing of the curriculum, discussions with the curriculum developers and teachers about the theoretical and practical problems in developing and teaching the curriculum materials, and classroom observations and teaching of the curriculum prior to the collection of data. Examples of foreshadowed problems for this study are shown in Figure 1.

These initial concerns focussed both on the teaching of thinking and on student involvement and

1. How do teachers influence students in taking positions on social and ethical issues?

2. Why are teachers and students at times able to clarify and support predictions with evidence, while at other times unable to do so?

3. What factors affect students who change their positions on social and ethical issues? How do teacher behaviors affect changing positions?

4. What effect do teacher behaviors have on analogical thinking?

5. What factors affect student involvement in classroom discourse? Student participation in discourse? Student-student classroom dialogue?

Figure 1. Examples of Foreshadowed Problems from Selected Social Studies Literature and Curriculum Development Experiences.

participation in the classroom.[8] Some foreshadowed problems concerned taking positions on social and ethical issues. The investigator's experiences suggested the possibility that the teacher's classroom actions had a strong influence on the positions taken by students on an issue. The investigator noted, for example, that in developing reasons for their positions students sometimes established relationships and priorities among the reasons, and that teachers' behaviors seemed to influence whether this occurred or not. In addition, a number of teacher behaviors appeared to change the focus of the lesson in specific classroom situations. The ability of the teacher to maintain a focus on specific arguments, or on a specific problem, seemed to affect the course of the lesson and the positions students took on the issue. Teacher behaviors also seemed to affect whether students were indecisive or whether they came to a decision about an issue.

Predicting the future seemed to play a prominent part in discussions about social and ethical issues. Students argued about what would happen if one or another position was held on an issue. It appeared that at times teachers and students were able to clarify such predictions and support them with evidence, while at other times such predictions were neither clarified nor

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[8]After a preliminary analysis of the data, the investigator decided to concentrate further analysis on the teaching of thinking.

supported with evidence.

The factors affecting students who changed their positions on social and ethical issues also became a concern. Students in classrooms observed during this investigator's curriculum development experiences were given an opportunity to change their minds on social and ethical issues. It is assumed that in intellectual discussions changing positions are to be based on careful analysis and challenges to one's position by another. In practice it appeared that factors such as social pressures were at least as important as intellectual considerations. A teacher's classroom behaviors seemed to have an influence on the factors which led students to change their positions.

Another foreshadowed problem concerned analogical thinking. Oliver and Shaver (1966, pp. 118-125) suggest that analogical thinking helps students to clarify their positions on social and ethical issues. In the Washington University curriculum, analogies are presented to the students in order to help them to clarify their positions. The investigator's experiences suggested that some teacher behaviors fostered analogical thinking while others did not.

Finally, a number of concerns were related to student and teacher discourse in classrooms. The investigator noted that at times students appeared to be involved in classroom discourse. In some lessons, some

students dominated most of the discourse. Sometimes there was a great deal of student-student dialogue; at other times there was little student-student dialogue.

Data Collection

The initial concerns or foreshadowed problems led the investigator to begin research on these questions by collecting naturalistic field observation data in the two settings. Naturalistic field observation data were collected because the investigator concluded that the two major types of research which have contributed to the development of a theory of the teaching of thinking--experimental and quasi-experimental designs (Campbell & Stanley, 1963) and content analysis or category systems--had limitations for developing concepts and hypotheses from classroom data. For example, Oliver and Shaver (1966) conducted a classroom study on the teaching of social and ethical issues, and Glaser (1941) and Hyram (1957) have conducted studies on the teaching of critical and logical thinking, which relied on pretest-posttest experimental designs. Such studies were intended to provide evidence to determine whether one method of teaching or one set of materials lead to more learning than another. While such studies are useful for verifying hypotheses relating to the teaching of thinking skills, they provide little detailed information on classroom events from which antecedents and consequences of student and teacher behavior can be developed.

Content analysis or category systems studies (see e.g., Aschner, Gallagher, Perry, Afsar, Jenne & Farr, 1965; Flanders, 1965, Oliver, Newmann & Levin, 1969; Smith & Meux, 1962, Withall, 1956) utilize quantitative counts of classroom verbal behaviors and the taxonomic mode to examine classroom patterns of behavior. Each system provides a limited perspective from which to view teaching (Hyman, 1968, pp. 2-11). Given a narrow perspective, the use of such systems limits the data collected for the development of concepts and hypotheses. For example, much important data describing the context in which a classroom event takes place are lost when content analysis or category systems are used. The importance and quality of a given teaching event frequently depends upon its context in a lesson; the same event may be trivial or crucial, depending on the context of a teaching situation (Oliver, Newmann & Levin, 1969, p. 133). Data about this context are important for developing concepts and hypotheses related to teaching. Observations using a category system, however, do not enable the researcher to collect data about the context of a teaching situation.

Also, content analysis or category systems are taxonomic modes of research. They are designed to examine a cross section of events in a particular time period. However, important problems in teaching involve changing events over time, which require propositional modes of

research (Smith & Brock, 1970, chapter 3). The categorization of events with content analysis systems does not enable the researcher to collect data about changing events over time.

Naturalistic field study techniques offered a more open-ended means of collecting data for research in studying classroom events and developing concepts and hypotheses. According to Biddle (1967, p. 338) the naturalistic field approach is a good method for formulating new concepts and relationships. It is particularly suited to studies of this kind, where the researcher has some general problems in mind, but no specific hypotheses or research design (Strauss et al., 1969, p. 25). In the field study intensive naturalistic field data are collected from classrooms and examined for emerging concepts, hypotheses and theories (Glaser & Strauss, 1967). The researcher collects data including the context in which classroom events take place and he is thus able to assess the importance and quality of classroom events. The investigator is also able to collect data on changing events over time, and thus to generate hypotheses about teaching from such data.

One concern with this type of study is in obtaining a valid picture of the phenomenon under study. Smith (1969, pp. 13-16) suggests that the use of a variety of data collection methods to collect data about many

variables,[9] in a variety of settings from many people, will increase the probability of validity. He calls this the multi-method, multi-situation, multi-variable, multi-person methodology. Figure 2 summarizes the methods, situations, variables, and people in the data collected for this study.

According to McCall and Simmons (1969), naturalistic field study methods include

> . . . some amount of . . . social interaction in the field with the subjects of study, some direct observation of relevant events, some formal and a great deal of informal interviewing, [and] some collection of documents and artifacts, (p. 1)

Although all of these methods were utilized in the collection of the data for this study, the primary mode was direct, non-participant observations of classrooms in two settings.

In each setting, the issue discussion lessons were observed. Classroom dialogue was tape recorded, and extensive field notes were taken in class. The field notes also contain interpretive asides (Smith & Geoffrey, 1968, p. 13) in which the researcher records conceptual interpretations of what he observed happening. In addition, the investigator informally interviewed teachers and other observers for about fifteen minutes either before or after class. Nine of the conversations

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[9]Variables for this study refer to changing behaviors, lessons, and settings.

Methods:

Direct field observations of classrooms including tape recordings of lessons (primary data)
Unstructured interviews (secondary data)
Tape recordings of curriculum meetings (secondary data)
Examination of lesson plans and curriculum materials (secondary data)

Situations:

Two classroom settings
Critique sessions of field tested lessons
Before and after class discussions with students and other observers and teachers

Variables:

Teacher behaviors
Student behaviors
Teacher-student interactions
Student-student interactions
Curriculum units and lessons
Classroom physical settings

People:

Teachers
Other observers of lessons
Curriculum developers
Students

Figure 2. Methods, Situations, Variables, and People in Data Collection for this Study.

were tape recorded. Thus, although the primary source of data for this study was non-participant observations, the investigator did have access to the teachers' comments about the classes taught. The methodology was similar to the inside-outside methodology described by Smith and Geoffrey (1968, p. 3)--the combined perceptions of both the non-participant observer and the participant teacher.

Additional interview data were collected after a preliminary analysis of classroom observations was made and concepts began to emerge from the data. Post teaching interviews were conducted with the teachers[10] in order to help suggest and support explanations for the conceptual relationships established. Mr. Kapp was interviewed again on July 16, 1970; Miss Morgan on July 21, 1970. Such post teaching interviews were found to be necessary because the original interviews had not always focussed on events which later were conceptualized by the investigator. Thus the theoretical framework which emerged from the data guided the researcher in the collection of further data from teachers (Glaser & Strauss, 1967, p. 40).

Another important secondary source of data suggested concepts, provided explanations for the relationships established, and increased confidence in

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[10] Only Mr. Kapp and Miss Morgan were interviewed again; Miss Simon was not available.

the validity of the descriptions and analyses. Each week, meetings were held to critique the lessons and the materials in the India unit to help the curriculum developers revise the materials. At these sessions, the curriculum developers, teachers, and observers attempted to analyze what had happened during the lessons. Observers who had taken notes on the lessons reviewed their notes and commented on the lessons. The teachers also commented on the lessons often indicating their motives for using certain teaching strategies in class. Changes were proposed for the teacher's guides and curriculum materials. The investigator participated in these discussions, commenting on both the lessons and the materials. Two weekly meetings, one on December 12, 1969, the other on December 18, 1969, were tape recorded. Each meeting lasted approximately two hours.

Finally, the teacher's guides, student texts, and student activity exercises from both units observed were collected and compiled for future examination and reference.

Data Analysis

Non-participant observation data from naturalistic field settings are used to generate descriptive narratives and concepts and hypotheses from classroom events (Smith, 1969). Smith and Brock (1970, chapter 4) suggest the following five epistemological levels of concern to

investigators utilizing naturalistic field observation techniques: (1) reality, flux of events, (2) field notes and protocols; (3) descriptive narrative in lay language, (4) substantive middle range theory, and (5) formal or grand theory. The collected data include field notes and protocols. In the course of this study, this investigator developed from the data descriptive narratives of the events observed, concepts, and hypotheses which contribute to the development of substantive middle range theory.

In generating concepts and hypotheses the researcher continually moved from data to concepts and back again from concepts to data (Glaser & Strauss, 1967, pp. 105-109). Initially, this researcher examined the data for classroom incidents which were similar to each other and for interpretive asides from the field notes which suggested concepts. These tentative concepts then guided the researcher in examining other incidents in the field notes, other collected data, and related literature to help clarify and modify the concepts. The concepts which emerged from the data during the initial analysis were primarily related to the teaching of thinking, and the investigator decided to concentrate further analysis on developing concepts and hypotheses related to the teaching of thinking.

Two other factors guided the researcher in the generation of concepts. First, an attempt was made to

generate concepts which are variates (Zetterberg, 1965, p. 64). Concepts which are variates are, generally, ". . . . susceptible to quantification in greater or smaller amounts; they represent continua" (Smith & Geoffrey, 1968, p. 17). Second, an attempt was made to generate concepts which are applicable to a middle range of classroom events. The researcher attempted to avoid concepts which appeared to be solely applicable to the classrooms observed; or which appeared to be so general as to apply to all classrooms. The following quotation from Glaser and Strauss (1967) summarizes the researcher's position:

> In deciding upon the conceptual level of his categories, the sociologist [educator] generating theory should be guided by the criteria that the categories should not be so abstract as to lose their sensitizing aspect, yet must be abstract enough to make his theory a general guide to multi-conditional ever-changing daily situations. Through the level of generality of his concepts he tries to make the theory flexible enough to make a wide variety of situations understandable (p. 242).

Once concepts were generated, patterns of incidents (the descriptive narratives)helped to suggest relationships (hypotheses) among the concepts. The relationships link antecedents and consequences of instructional strategies and thought processes from the issue discussion lessons observed.

Reporting the Results

In the process of analyzing the data, the investigator noted that lessons or lesson segments in both settings had a number of characteristics in common. For example, in both settings the teachers first reviewed the arguments from stories. Second, the teachers in both settings, in an effort to enable students to understand the arguments in the dilemma, conducted similar kinds of role play activities. Third, students in both settings took initial positions on the dilemmas. Fourth, they contended with each other's arguments on both sides of the dilemma. Finally, they contended with analogies.

Figure 3 outlines the lessons or segments of lessons which had common characteristics in both settings. Examples of the results of the study are presented in the remainder of this article. These include sections of the analyses of lessons in which students and teachers attempted to review arguments, understand arguments, and take initial positions. The examples are intended to illustrate some important concepts and hypotheses regarding the thought processes in value issue discussions and the consequences of instructional strategies in such lessons. A more comprehensive set of concepts and hypotheses may be found in the original study.[11]

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[11]See Seif (1971).

Foster School	Grant School
Reviewing Arguments	
12/8--Miss Simon: Review arguments on both sides of the dilemma from stories.	1/20-1/21--Miss Morgan: Review arguments on both sides of the dilemma from stories.
Understanding Arguments	
12/9--Mr. Kapp: Understand arguments on both sides of the dilemma by role playing people on both sides of the dilemma.	1/21-1/22--Miss Morgan: Understand arguments on both sides of the dilemma by role playing positions on both sides of the dilemma.
Taking an Initial Position	
12/15--Mr. Kapp: Teacher solicits student opinions on the dilemma.	1/22--Miss Morgan: Teacher solicits student opinions. Students are asked to take a position on the dilemma.
Contending with Arguments	
12/16--Mr. Kapp: "Deliberate" Discussion	1/23--Miss Morgan: Open Discussion
Contending with Analogies	
12/17--Mr. Kapp: Presentation and discussion of analogies.	1/23--Miss Morgan: Presentation and discussion of analogies.

Figure 3. A Summary of Lessons or Segments of Lessons with Common Characteristics in Both Settings.

Results of the Study: Some Examples of the Analysis of Data

Relating Positions, Reasons, and Evidence

A number of concepts emerged from a comparison of statements made by students and teachers in the lessons observed which helped the investigator to develop a definition of an argument for this study.

One part of an argument consists of a position on the value issue. In the lessons observed, a position on a dilemma is an opinion on what should be done to resolve the dilemma. In the India unit, students who say "I think Darzi should go to the city" are stating their opinion on what Darzi should do.

Students not only state positions on the dilemma, but present reasons to justify their positions. If a student's position is that "Darzi should go to the city," a reason that he might give is that "Darzi will have a better life there." Reasons usually follow a student's position with the word because--e.g., "Darzi should go to the city because he will make more money, part of which he could send back to his family to help them."

In addition to presenting reasons, students presented evidence to support a reason. Evidence consists of factual claims. For example, a student may give evidence for the reason "Darzi will have a better life in the city" which supports the position Darzi

should leave. The evidence may consist of showing that there are plenty of jobs for people in the city; or that other people in the past who have gone to the city have had a better life.

Thus an argument is defined as a set of relationships between positions, reasons, and evidence, as well as a set of interrelationships among reasons. Interrelated reasons are used to justify positions and evidence is used to support reasons.

In some of the issue discussion lessons observed, in which students were reviewing the arguments on both sides of the dilemma from stories presented in the lesson, the teachers helped students support positions with reasons, but did not help students develop of relationships among reasons and between reasons and evidence. Miss Simon teaching the India Unit and Miss Morgan teaching the Changing Neighborhood Unit followed a similar pattern of teaching during these lessons. Miss Simon, after a recording of a story called "The Quarrel"[12] is played, solicits student recall of Darzi's reasons for leaving and the students respond to the teacher with a reason. She accepts the reason and then lists it on the board.

A typical section from Miss Simon's class is the following:

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[12]In "The Quarrel" Darzi and his Uncle Rami have an argument as they are working in the fields together. The argument occurs when Darzi tells his uncle that he wants to leave his Indian village and go to the city to live.

T: What was the argument about, Cathy?

S: He wanted to go to the city and get a job.

T: Who wanted to go to the city and get a job?

S: Darzi.

T: Darzi. All right. Let's list some of Darzi's arguments[13] on the board. What were some of the reasons Darzi gave for wanting to leave? Sally?

S: Well, if he leaves, there will be more food and he says that he'll send money back to them.

T: All right, you have two arguments there, let's take one at a time. The first one was there would be more food for whom if Darzi left?

S: There would be more food for the family if Darzi left.

T: All right. More food for the family if Darzi left--there'd be one less mouth to feed. Right? [Teacher puts "more food for other members of the family" on board.] More food for other members of the family. Now what was the other argument?

S: Darzi will send money back.

T: All right. That Darzi would send money back from the city. [Puts on board, "Could send money back."] All right, good, What are some of the other arguments? Barbara?

S: He wanted to go because he didn't have anything to look forward to--all he got was a little grain for working so hard.

T: He didn't have anything to look forward to from working so hard, you mean. Nothing but hard work, in other words. Is that what you meant? [Teacher writes "nothing but hard work" on board.] Anything else, Theresa?

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[13]Miss Simon's use of the word "argument" is not the same as defined here. She apparently equated "arguments" and "reasons" and used them interchangeably.

S: Well, he didn't have any land, because it wasn't his land.

T: Right, he doesn't have any land of his own (Teacher writes on board, "no land of his own.") All right, are there any other arguments of Darzi's, anybody else besides Theresa? All right--Suzie?

S: (Unclear) . . . if he could get a lot of money working, then he could send money back and then his family will get some money.

T: You think he could get more money in the city . . .

S: Yes, and he wouldn't have to--won't have to work so hard and he'll still get more money to send back . . .

T: All right. He won't have to work so hard and still have more money. (Teacher puts "won't have to work so hard, but still will have more money" on board.) All right, I saw another hand. Sally? (12/8)

Thus, a typical pattern in Miss Simon's class is for the teacher to solicit reasons from the stories, for the students to respond with reasons, and for the teacher to react by accepting the reasons and putting them on the blackboard.[14] This general pattern occurred sixteen times in Miss Simon's lesson. At the end of Miss Simon's lesson, the following list of reasons was on the board.

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[14]This characterization of patterns of teacher-student behavior is outlined by Bellack, Kliebard, Hyman and Smith (1966). They suggest that the soliciation, response, reaction pattern is a major pattern observed in classrooms. It is adopted here because it is a prevalent pattern in these lessons.

Darzi	Rami
More food for other members of the family	Darzi's father had died in the city
Could send money back	One less person to work in the fields
Nothing but hard work	Nathan couldn't work
No land of his own	Couldn't hire help
Won't have to work so hard, but still have money	Breaking caste laws
	Who would marry Kamala
He is young and strong	Family won't be respected
	Has to pay back Bal
Ramai could hire someone	Has to pay taxes or lose land
	Two good years and Darzi could have his own land (12/8 field notes)

In the Changing Neighborhoods Unit, after a story about Will Davis and his friends at the bowling alley[15] is read in class, the following classroom dialogue occurs:

> T: Okay, let's stop there for a second and jot down one or two major ideas. In this story, Marcia said they wanted to stay so maybe we should have two columns so that we sort these ideas in our own mind. From this story, what is the main reason that you can think of that Joe Williams said that they should stay in the neighborhood?
>
> S: Because he thought that the people who were white and not black were going to give him trouble.
>
> T: "Whites may give him trouble"[Miss Morgan repeats this as she puts it on the board.] Is that okay with you or do you have a better idea?

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[15]In this story Will Davis and his friend, Joe Williams, argue the pros and cons of moving to a nearly all-white suburb.

S: No, that's all right.

T: Kristine?

S: Well, I think the main idea of why he thought he should stay was the man Joe Williams thought that the blacks should stick together.

T: [Miss Morgan writes "blacks should stick together" on the board.] All right. Eileen?

S: Well I think they ought to move.

T: Okay.

S: Well, I think that Joe Williams---

T: Well, Joe Williams--well, go ahead with your statement.

S: Well, the main idea of why they should move is that the neighborhood is changing, it's not like it used to be--kids--like it's not safe anymore.

T: [Miss Morgan writes "neighborhood's changing--unsafe" on board. Class interrupted by an invitation to a play--the class then continues.] Janet?

S: I think that another main reason was that if blacks started moving into white neighborhoods, they would start to become like big shots or something. Like they would leave the blacks alone.

T: [Miss Morgan writes on board "big shots if move."] Okay, let's pick up where we left off . . . (1/20)

Miss Morgan's pattern of interaction with students is similar to Miss Simon's. She solicits recall of reasons from the stories read in class. The students respond with reasons, and she reacts and puts their responses on the board. After Miss Morgan lists some reasons from their first story, she moves to a second story, "Jim at the Schoolyard."[16] When the students have

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[16]In this story, Will Davis' son, Jim, meets his friends at football practice and they discuss the possibility of Jim's leaving the neighborhood.

completed reading this story, she again solicits recall of the reasons to add to the list already on the board. The same procedure is followed for the third story, part of which is read on 1/21. Miss Morgan follows this general pattern of solicit, response, and reaction sixteen times on 1/20 and 1/21. After reading the stories and reviewing the reasons given in the three stories, the following list of reasons was on the board.

Stay	Move
Whites may give trouble	Neighborhood's changing--unsafe
Blacks should stick together	Trash--dirt
Big shots if move	Better schools
Jim doesn't want to leave (distance, black face) friends	New experiences
Whole neighborhood is very close friends, church, mother	Jim could be a leader--sports and father's job
Money	Have own land
People to lend a helping hand	Could make friends in new neighborhood
	All people would be friends if they just knew each other
	Once in a lifetime chance
	Money

(1/21 field notes)

This solicitation, response, reaction pattern of teaching does lead to relating positions with reasons. For example, when Miss Simon asks students for some reasons Darzi gave for wanting to leave, a student responds with the following comment:

S: Well, if he leaves, there will be more food, and he says that he'll send money back to them
(12/8)

In other words, the student suggests that Darzi thinks he should leave (position) because there will be more food for the family, and he could send money back when he finds a job in the city (reasons). When Miss Morgan and Miss Simon accept such reasons and list them on the board, they sort them according to the positions they justify.

However, the teacher's reaction to a response such as this in both lessons--her acceptance of the reason, coupled with its listing on the board--made it difficult to establish interrelationships among the reasons. For example, on 12/8 in Miss Simon's class, students give two separate reasons for Darzi's leaving:

T: . . . All right, good, what were some of the other arguments? Elisha?

S: He wanted to go because he didn't have anything to look forward to--all he got was a little grain for working so hard.

T: He didn't have anything to look forward to from working so hard you mean. Nothing but hard work, in other words. Is that what you mean? (Teacher writes "nothing but hard work" on board.) Anything else? Theresa?

S: Well, he didn't have any land, because it wasn't his land.

T: Right, he doesn't have any land of his own. (Teacher writes on board "No land of his own")
(12/8)

In this example, Miss Simon puts two separate reasons on the board, "nothing but hard work" and "no

land of his own." These two reasons, however, are related: Darzi wants to go to the city because his hard work on the farm gets him nothing, not even his own land.

In the Changing Neighborhoods unit lesson, Miss Morgan accepted and listed on the board for the stay side the reasons "blacks should stick together," and "people to lend a helping hand." However, these two reasons are related. Blacks should stick together in the neighborhood so that people can lend each other a helping hand. Thus this pattern of teaching does not foster student understanding of the interrelationships among the reasons listed on the board on the same side of the dilemma.

In addition, this immediate acceptance of reasons and their listing on the blackboard did not foster the supporting of reasons with evidence. The teachers did not solicit supporting evidence for a reason, but immediately moved to the next reason, which they again listed on the board. Thus there is no evidence presented in either lesson for the reasons given on either side of the dilemma.

The following hypothesis was developed as a result of this analysis of data:

The solicitation, response, reaction pattern of teaching facilitates the establishment of relationships between positions and reasons, and does not facilitate the establishment of relationships among reasons, and between reasons and evidence.

Clarifying Arguments

Previously an argument was defined as a set of relationships between positions, reasons, and evidence. An analysis of the instructional strategies and concerns of Mr. Kapp in some of the lessons observed in the Indian Unit suggested that clarifying arguments mean clarifying the relationships between positions, reasons, and evidence. The data also helped to further define these relationships.

As already indicated, one type of relationship consists of relating a position to a reason. A student who makes the statement "Darzi should leave to go to the city because he will have a better life there" is relating a position to a reason. The term "because" suggests that the reason is being used as a justification for a position, and we shall use the term justify to signify this relationship.

An analysis of the data indicated two major types of reasons students used to justify positions. First, the reasons tended to be in terms of a consequence or a series of consequences of an act which would result from that position. Thus, students would predict what would happen if Darzi left or stayed, or if the Davis family left or stayed. This type of reason is called a predictive reason. Some examples of predictive reasons which students gave in the lessons observed were that if Darzi leaves the family

will starve, Rami will lose his land, the family will be kicked out of the caste, Darzi will make more money and have more friends, and Darzi will have a better life. The investigator noted that predictive reasons given by students in these lessons often consisted of a prediction of a future event or related chain of events. On 12/11, for example, a number of students predict what will happen if Darzi leaves or stays. Some examples are:

> S: Well, if he [Darzi] goes, they might get kicked out of the caste and Kamala might not be able to find a good husband it said in the story, and that they won't have a good crop . . .
>
> S: . . . If you get kicked out of the caste and go to the city, the rest of the family will leave and the daughter won't be able to get married because nobody will respect her, 'cause . . .
>
> S: Well, you said- well--what about the family? You are part of the family and if you leave all of us could die of starvation and if you aren't part of the caste then you might die of starvation, too, because you won't have anywhere to go then and then you'll die because they won't let you back anyhow, and--um . . . (12/11)

Students in these examples have connected a series of events to develop a predictive reason, which supports a position that Darzi should either leave or stay. Thus relationships were established among events by the students in order to justify a position on the dilemma. The process by which such events are connected is called chaining because the predictive reasons consist of a series of events connected into a chain.

One way in which predictive reasons were clarified

in the lessons observed was chaining them to make them more explicit, so that more of the sequence of events was carefully developed. Thus, the predictive reason "If Darzi goes to the city, the family won't have a good year" was made more explicit when new events were added into the chain, and the predictive reason became "If Darzi goes to the city, there will be one less person to plow the fields, Rami will have to leave land fallow, and the family won't have a good year" (12/11). Another way new events were added to the chain was by adding them on to the predictive reason, thus extending the chain of events to suggest further consequences. The same predictive reason was extended to "If Darzi goes to the city, the family won't have a good year, they will not have enough food, and someone in the family will die" (12/11).

A second set of reasons used to justify positions tended to be in terms of general factual claims. Students made claims about what the old neighborhood was like in the Changing Neighborhoods unit to support the move position. Some claimed, for example, that the schools are poor, or that there are too many robberies. Students on the stay side claimed that the Davis' had many friends in the old neighborhood, and thus should stay.

Arguments were also clarified when students developed priorities among reasons. In other words, students distinguished among reasons by deciding which

ones they felt were more important to them than others. Mr. Kapp indicated in a meeting that he was concerned about establishing priorities among reasons.

Students also support reasons with evidence. The lessons analysis suggested that evidence clarified arguments by making predictive reasons more probable. As a result of this analysis a simple continuum of predictive reasons was developed, as shown in Figure 4. One end of the continuum indicates a prediction which is an absolutely certain occurrence. On the other end of the continuum is a prediction which is an impossible occurrence. The function of evidence in arguments is to make predictions less impossible and more certain--i.e., to move predictive reasons from one end of the continuum to the other. This increased probability of occurrence thus makes them stronger reasons for justifying a position.

Evidence also clarified arguments by making general factual claims more credible. Factual reasons presented without evidence are less credible than those which are presented with evidence. General factual claims can also be put on a continuum. On one end is an assumption--on the other is an absolutely certain factual claim. The function of evidence is to move a factual claim from one end of the continuum to the other. This increased credibility thus strengthens reasons used to justify a position. This continuum is shown in Figure 5.

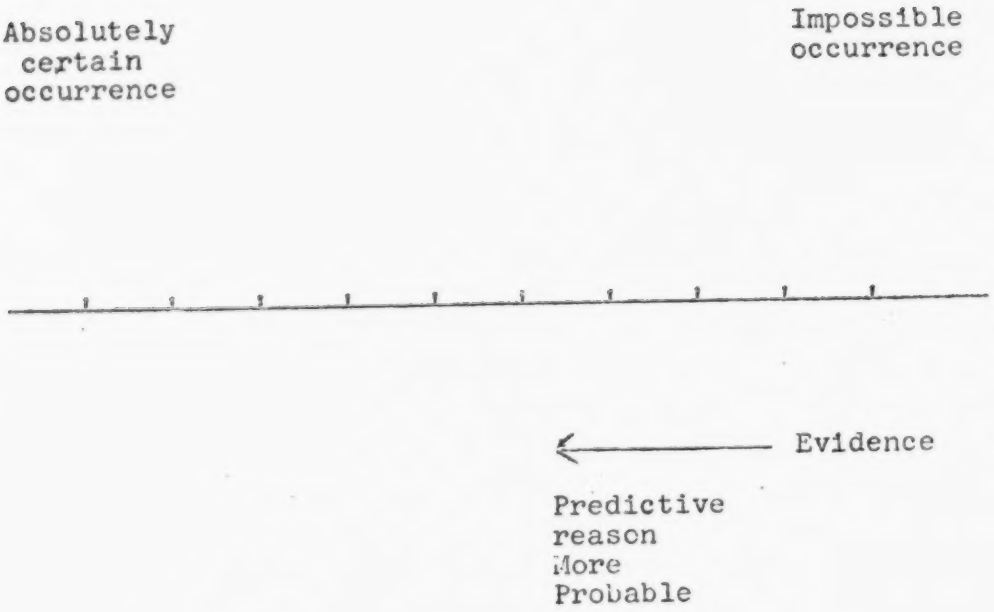

Figure 4. Evidence and Its Relation to Predictive Reasons.

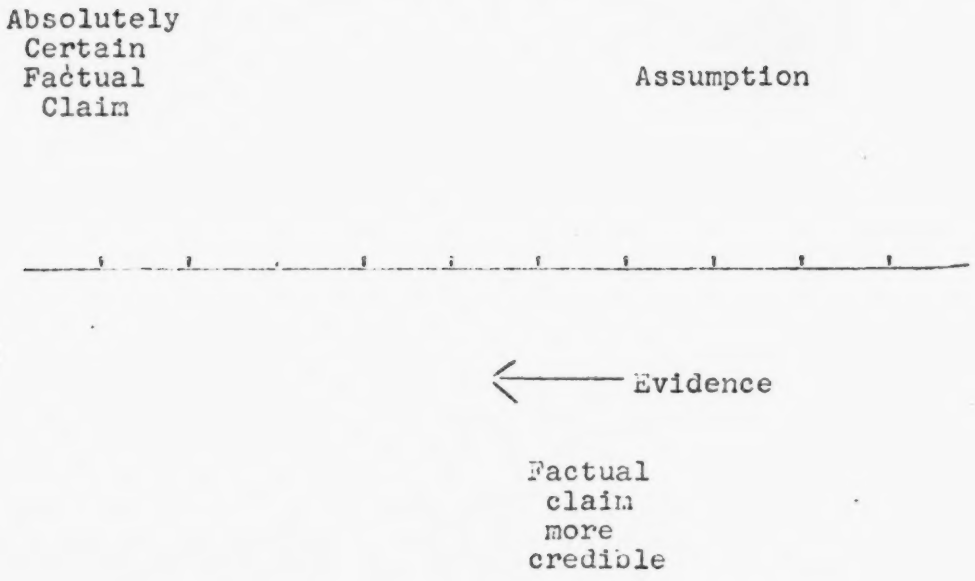

Figure 5. Evidence and Its Relation to Factual Claims.

Figure 6 summarizes the relationships between a position, reasons, and evidence which constitutes the clarification of an argument.

In one of the lessons observed, Mr. Kapp attempted to clarify arguments. One common strategy which Mr. Kapp used to facilitate the clarification of arguments was for him to take on a perplexity stance. The term perplexity is used to refer to statements which indicate bewilderment or puzzlement or disbelief over what has been said by another. The term stance is used to suggest the purposeful nature of the behavior, as evidenced by Mr. Kapp's comments in a post teaching interview:

> Observer: . . . You said something immediately after that [student's comment]--"I don't understand that." You used that same phrase a number of times. Was there a purpose in doing that?
>
> Mr. Kapp: I do that frequently. The purpose is that it gets the child to think through what he's just told me. To him it's clear because he's put it in his own words. But if he recognizes that it's not clear to me then in thinking through, he may be able to state his position more precisely. See, the comment--it's a very general kind of argument. By forcing him to realize that I don't understand, then he'll make it clearer--state it more clearly (7/16).

Mr. Kapp's concerns and his strategies in the classroom facilitated the establishment of relationships between positions, reasons and evidence which constitute the clarification of arguments. For example, early in the lesson, ~~before the switch sides strategy is implemented,~~ Mr. Kapp is holding a discussion with students

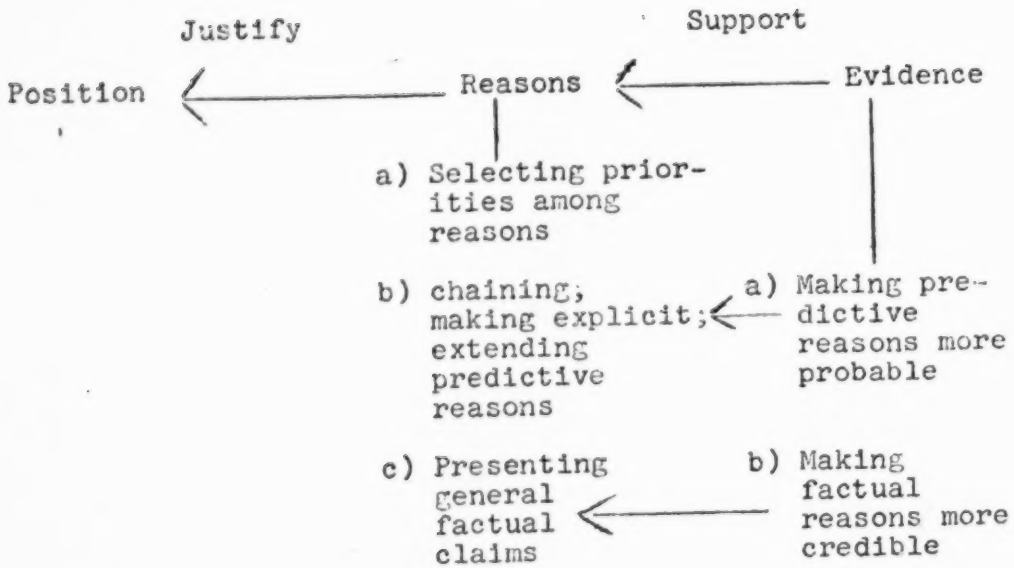

Figure 6. The Relationships Among Concepts for the Clarification of Arguments.

on the problem in the unit. The following dialogue occurred:

T: Darzi wants to go to the city and do what?

S: Get a better job?

T: Get a better job. That's what Darzi wants, is that right? (uh huh) Well, I don't see anything wrong with that? He wants to go to the city and get a better job. We saw a slide tape earlier in the unit where a young guy went to the city, so why can't Darzi? I don't see any problem. Can you see a problem?

S: Yes.

T: What problem is there?

S: If Darzi goes to the city, the family won't have a good year (12/11)

In this instance, Mr. Kapp appears perplexed about Darzi's dilemma: he doesn't understand why Darzi's going to the city is a problem. Consequently, the student gives him a reason to support the position that Darzi not go to the city ("If Darzi goes to the city, the family won't have a good year"). In other words the teacher's perplexity over the dilemma has led the student to justify his position with a reason.

Mr. Kapp also attempted to facilitate the chaining of predictive reasons. As defined earlier, predictive reasons are reasons which suggest a possible consequence if a course of action is followed. Students gave predictive reasons which outlined future events, or chains of future events, which would occur if the principals in the dilemma followed a given course of action. Mr. Kapp's

strategies appeared to help establish and develop relationships and connections among events--in other words, facilitated chaining. For example, during the first phase of Mr. Kapp's lesson on 12/11, before he and the students played the roles of Darzi and Rami, an attempt was made to clarify a student's predictive reason:

S: If Darzi goes to the city the family won't have a good year--and, ah--'cause in Chart A--

T: Wait a minute! Wait a minute! If he goes to the city the family won't have a good year. I don't know what that means, Jim. I don't know what a good year means.

S: They won't have as good a harvest as they would if Darzi was there because in the chart it shows how many--if Darzi left--how many pieces of land he had for fallow. In one he has four fallows and in another he has three fallows.

T: So if Darzi goes to the city, they'll have four fallows and if he stays they'll have three fallows? Is that it? Is that what your chart says?

[Student and teacher engage briefly here in trying to figure out how much land will be fallow if Darzi leaves.]

T: What's he trying to tell me, anybody know? What's he trying to tell me? He's doing a good job but I'm just not understanding him. What's he trying to tell me?

S: Well, like if Darzi leaves it will be harder for Rami to plow the fields and--you know--he won't make such a good harvest . . .

T: Well, what else is he trying to tell me? Someone else? Janice?

S: Well, less work will get done.

T: What do you mean, less work will get done? What is that?

S: Well, if Darzi leaves then that means that Rami can just plow the fields and he can't do it very fast--just one person plowing all those fields is not very easy.

T: Okay, okay. That's very good . . . (12/11)

This last remark of Mr. Kapp ends the discussion of this prediction in this part of the lesson. The student presented a prediction, and Mr. Kapp appeared perplexed about the term good year. Jim then extended the prediction to: If Darzi goes to the city, they will have some land fallow, and the family won't have as good a harvest. After trying to clarify just how much land will be fallow, the teacher again assumes a perplexed stance ("he's doing a good job but I'm just not understanding him") and calls on another student to help explain to him just what Jim means. This student relates a new event to the chain: If Darzi leaves, it will be much harder for Rami to plow, he will have to leave some land fallow, and the family won't have as good a harvest. Continued perplexity on Mr. Kapp's part--("what else is he trying to tell me?")--adds a new link to the chain--he can't plow the fields as fast. Thus, as a result of Mr. Kapp's perplexed stances, a predictive reason becomes: (If Darzi goes to the city), Rami will plow the fields alone, and he can't do it as fast, which means he will have to leave some land fallow, and the family won't have as good a harvest.

Thus the teacher perplexity stance, when used in Mr. Kapp's lesson with predictive reasons, facilitated the

chaining of events--i.e., the predictive reasons were made more explicit and/or extended.

Mr. Kapp also solicited support for reasons given by students in class. In other words, he attempted to strengthen arguments by fostering relationships between reasons and evidence--i.e., to make hypothetical reasons more probable and factual reasons more credible.

For example, on 12/11 Mr. Kapp has the following dialogue with Martha:

> T: Well, tell me what you were going to say.
>
> S: Well . . . [if Darzi leaves, and], . . he [Rami] can't plow all those fields then he can't get enough food and somebody is gonna' die of starvation.
>
> T: Aren't you just guessing, though?
>
> S: No, if he has some fields unused--well, we're [the Prakish family] not in too good shape now and what are we going to do later? (12/11)

Mr. Kapp solicits support for the statement "we're not in too good shape now."

> T: What do you mean, they're [the Prakish family] not in too good shape now? I don't understand that--I thought everything was just fine. What's this not in too good shape? Prove that to me! Just because Rami says in the argument you heard that they're not in too good shape now, ha, ha, ha, I don't believe that! . . .
>
> S: They're not in too good shape because on the chart it says they have debts to pay--
>
> T: Where?
>
> S: Right here.
>
> T: Well now, show me the chart. What does the chart tell us? . . . (12/11)

Mr. Kapp's questions and statements indicate a form of perplexity. He indicates disbelief of the statement "We're not in too good shape now" by indicating his personal uncertainty about its credibility. In response to this disbelieving stance, the student refers to evidence from the curriculum (charts presented earlier) to support his statement. In other words, Mr. Kapp's disbelief facilitated making a factual reason more credible, and thus strengthened the argument.

Thus, in the lesson observed which was taught by Mr. Kapp on 12/11, the teacher perplexity stance was used to relate positions and reasons and to chain predictive reasons and make them more explicit and extended. Disbelief perplexity fostered relationships between reasons and evidence which strengthened the arguments in the dilemma.

The following hypothesis was developed as a result of this analysis of the data:

> The teacher perplexity stance facilitates the justifications of positions with reasons, the clarification of predictive reasons, and the use of evidence to support reasons.

Weighing Arguments

On another day, the students in both settings took initial positions on the dilemma. Data analysis indicated

three kinds of initial positions. One was for a student to take an initial position on one or the other side of the dilemma. A second was for students to be undecided on the dilemma.

Third, students attempted to devise wishful thinking solutions. For example, students suggest the following solutions when Mr. Kapp solicits their initial position:

> T: . . . All right Norma, where are you?
>
> S: Well, he [Darzi] could go and like after two years or so he could come back 'cause it would be just before--
>
> T: Okay. Martha, what do you think?
>
> S: Well, I think he should go sort of, because--
>
> T: Well, he can't go sort of. Part of him can't stay and the rest of him go sort of.
>
> S: Well-um--so may he could like--find a job that he likes and he gets enough money for the family . . . (12/15)

Wishful solutions to the dilemma are those by which an attempt is made to satisfy both sides at once. In the above example, students claim that Darzi could leave and either come back or send money back, thus satisfying Darzi's desire for a better life and insuring his family's survival.

Students take initial positions by weighing arguments on both sides of the dilemma. There is little evidence available as to how students weigh arguments to take an initial position. However, based on data

analysis from these and previous lessons one factor which may contribute to the positions students take is the role of the teacher in the classroom. A teacher who took a position on one or the other side of the dilemma might influence some students to take the same position. Neither teacher, however, influenced students by taking a position on one side or the other. Mr. Kapp, on 12/15, expressed his own indecision on the dilemma, and thus minimized the possibility of students modifying their positions in accordance with the teacher's position on one or the other side of the dilemma. For example, Mr. Kapp refers back to a girl who expressed her indecision in the middle of the lesson and expressed his own indecision at the same time:

> T: Ruth, have you changed your mind yet? . . . I'm still kind of mixed up too. (12/15)

And, later:

> T: . . . Okay? I'm still not certain [pause] Are you? . . . (12/15)

However, the teacher's expressed indecision may have influenced some students to remain undecided, rather than to take a position. This is supported by the relatively large number of students--nine--who remain undecided on the dilemma in Mr. Kapp's lesson..

Miss Morgan's behavior is more complicated. She does not openly state her indecision or decision on the dilemma. Thus she verbally maintains her neutrality on

the dilemma. However, during the switch sides strategy,[17] she does sit on the stay side, and at one point she intervenes in the discussion by making the following comment:

> T: Well, anyhow, you all are talking about--on our side [stay side] we're talking about saving our money for repairs but our house, really and truly our apartment doesn't look that bad and we probably don't need so many repairs and we could use the money for that but I think the most important thing for us to stay here is that we're very very comfortable. But it seems to me if the Davis' move out to a new neighborhood it is really going to be bad because where this house is out in Oak Park with all those white people out there I just don't know they're not going to be very nice to the Davis' and where the Davis' are now is really good and everybody is friendly and I think that is much more important than repairing the outside of the house.
>
> S: Well, first of all, if you're comfortable in a neighborhood that is trashy, dirty, and there's robberies all over the place, if you're comfortable in a neighborhood like that--
>
> T: My friends are here--
>
> S: Oh, your friends are here, who's your friends? People who rob? Who rob you and things like that, on the street?--Can't even walk on the streets alone.
>
> T: Well, [Pause] no. Those aren't my friends. But look at all the people I do have who are my friends and how do I know what I'm going to get into if I go out into a white neighborhood. It could even be worse. (1/22)

Miss Morgan has intervened for the stay side with reasons which have not been discussed previously, about the comfort of living where they do, and the difficulties

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[17]The switch sides strategy is a general strategy used in both settings. Each individual in the class argues from the positions on both sides of the dilemma by role playing taking positions on one and then on the other side of the dilemma.

they may have with whites in their new neighborhood. Thus, although Miss Morgan does not openly express a position on the dilemma, her interventions in the lesson, and her seating, might suggest to the students her support of the stay side.

One would suspect that this intervention and seating would influence students to support the stay side. Yet only four students support the stay side when students take initial positions. This suggests that initial position taking may be due to other factors in the lesson, such as the fact that Miss Morgan does not explicitly state a position on the dilemma (i.e., maintains verbal neutrality). In addition, both teachers also accept the positions of the students without comment when students take initial positions, thus helping to minimize the teachers' influence. Miss Morgan asked students to take an initial position by seating themselves on one side of the room or the other but made no other comments during this phase, even though few students supported the stay side. And earlier, she indicated that she did not care what position students took, so long as they had good reasons.

> T: . . . So you could really think about and listen to both sides and know both sides so when it does come time to make up your own mind even if it does add up, as Karl says, to 22 to 2, at least you'd know what you're thinking about and have some good reasons, as Jules said, you've got to have a reason . . . (1/21)

This analysis suggests that Miss Morgan's verbal neutrality and her acceptance of the positions of students were apparently more important than her interventions on the stay side, and decreased the possibility that students in the lesson would modify their positions in accordance with the teacher's position.

The following hypotheses were developed as a result of this analysis of the data:

a) Teacher indecision decreases the probability that students will modify their initial positions in accordance with the teacher's position on one or the other side of the dilemma, and increases the probability that students will remain undecided on the dilemma.

b) Teacher verbal neutrality and acceptance of student positions decreases the probability that students will modify their initial positions in accordance with the teacher's position.

Implications of the Study

This investigator, in this article, has illustrated concepts and hypotheses generated from field observation data related to the teaching of thinking, and explored the application of field research studies for developing instructional concepts and hypotheses. The writer believes that concepts and hypotheses which illustrate complex interactions between instructional strategies, thought processes, student behaviors, curriculum materials, and the classroom environment will lead to further development of instructional theory, and that naturalistic

field observation research is an important methodological tool for theory building. The development of such theory, however, depends on further empirical support for, and integration of, the concepts and hypotheses in order to develop interrelated sets of concepts and propositions (Zetterberg, 1965). Additional studies of teaching thinking should enable researchers to develop a more comprehensive set of interrelationships between concepts and propositions for the teaching of thinking.

In addition, the concepts and hypotheses outlined above and included in the study may also have practical implications for the teaching of thinking. One assumption is that a set of concepts and hypotheses closely related to the realities of a classroom situation should aid the teacher in making judgments about teaching behaviors to employ in a classroom. For example, the author has suggested some relationships between positions, reasons, and evidence which constitute an argument, and indicated how different instructional strategies utilized in the classrooms observed hindered or facilitated the development of these relationships and the clarification of an argument. The author also suggested how different instructional strategies related to the taking of initial positions on a value issue. Teachers especially concerned with clarifying social and ethical issues with children may find that these resulting concepts and hypotheses have implications for their teaching.

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